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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,757	04/17/2000	Steven T. Jaffe	34040/NEC/B600	1171

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EXAMINER	
LUGO, DAVID B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,757	JAFFE ET AL.	
	Examiner	Art Unit	
	David B. Lugo	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 30 April 2004.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 30-36,38-46,48,49 and 60-67 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 30-36,38-46,48,49 and 60-67 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/30/04 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 30, 40 and 60 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 30-36, 38-46, 48, 48 and 60-67 are objected to because of the following informalities:

a. Claim 30, line 12, "the ramped coefficient have been" should be --the ramped coefficient has been--.

b. Claim 32, lines 2-3, "the ramped values" should be --the ramped output--.

c. Claim 40, line 13, "the least one of the decision feedback" should be either --a decision feedback-- (see claim 30, line 11) or --the at least one decision feedback-- (see claim 60, line 14).

d. Claim 40, lines 14-15, "the ramped coefficient have been" should be --the ramped coefficient has been--.

e. Claim 42, line 2, "the ramped values" should be --the ramped output--.

f. Claims 49 recites that the coefficient ramping circuit is configured to define a portion of a DSL transmitter, and contradicts claim 40 which recites that a receiver comprises the ramping circuit. Accordingly, unless the apparent contradiction can be resolved, claim 49 should be cancelled (see also claims 39 and 69).

g. Claim 60, line 15, "the ramped coefficient have been" should be --the ramped coefficient has been--.

h. Claim 62, line 2, "the ramped values" should be --the ramped output--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 30-36, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langberg et al. (previously cited) in view of Takatori et al. U.S. Patent 5,581,585.

6. Regarding claim 30, Langberg et al. disclose a ramping circuit (converter 130) configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder via communication channel 132, where ISI filter 164 is considered to continually provide feedback filtering (see Fig. 6, col. 4, line 63 to col. 5, line 17).

7. Langberg et al. do not expressly disclose clamping the filter tap coefficients.

8. Takatori et al. disclose a limiter 360 for clamping filter coefficients to a maximum value (Fig. 3, col. 5, lines 1-24).

9. It would have been obvious to one of ordinary skill in the art to use clamped coefficients as taught by Takatori et al. in the filter system of Langberg et al. in order to ensure that the adaptive filter coefficients are maintained within acceptable values.

10. Regarding claim 31, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, eq. 1 – col. 5, line 31).

11. Regarding claim 32, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

12. Regarding claims 33-35, Langberg et al. disclose a ramping circuit that provides a ramped output varied over time from a first value to a second value, as described above, but do not expressly state whether the output is ramped linearly or non-linearly. However, one of ordinary skill in the art would recognize that the output in the ramping circuit of Langberg et al. must be ramped either linearly or non-linearly (i.e. exponentially). Selection of the ramping to be either linear or to exponential is deemed a design consideration that fails to patentably distinguish over the prior art of Langberg et al.

13. Regarding claim 36, the ramping circuit 130 receives the coefficients over channel 119.

14. Regarding claim 38, Langberg et al. in combination with Takatori et al. disclose a ramping circuit included in a transceiver as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119 used in a modem in a communications transceiver. Langberg et al. do not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well known in the art. It would have been obvious to one of

ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

15. Regarding claim 39, Langberg et al. in combination with Takatori et al. disclose a ramping circuit as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119, and is considered to define part of the transmitter associated with the precoder. Langberg et al. do not expressly state that the transmitter is a DSL transmitter. However, DSL transmitters are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

16. Claims 40-46, 48, 49 and 60-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langberg et al. in view of Morton et al., "Run-Time Precoder Updates for HDSL2," and Takatori et al.

17. Regarding claims 40 and 60, Langberg et al. disclose a transceiver comprising a receiver including a decision feedback filter (ISI filter 64) and a transmitter including a precoder 94 and a ramping circuit (converter 130), wherein the ramping circuit receives equalizer coefficient values from a decision feedback filter from a remote transceiver and determines a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and outputs information representative of the ramped output to the precoder, wherein the remote ISI filter 164 continually provides feedback filtering (see Fig. 6, col. 4, line 63 to col. 5, line 17).

18. Langberg et al. do not expressly disclose that the ramping circuit is included in the receiver and transmits information representative of the ramped output to a precoder of a remote transceiver via a communication channel.

19. Morton et al. disclose in Figure 1 (page 2), an adaptation algorithm included in part of a receiver for computing coefficients for the equalizer in the receiver and differential precoder coefficients and transmitting the precoder coefficients to a precoder of a remote transmitter.

20. It would have been obvious to one of ordinary skill in the art to incorporate the teaching of calculating precoder coefficients in an adaptation unit also used to calculate coefficients of an equalizer comprised in a receiver, and transmit those precoder update coefficients to a transmitter comprising the precoder, as suggested by Morton et al., in the device of Langberg et al. in order to reduce the need for an additional unit in the transmitter for calculating precoder update information.

21. Further, Langberg et al. do not expressly disclose clamping the filter tap coefficients.

22. Takatori et al. disclose a limiter 360 for clamping filter coefficients to a maximum value (Fig. 3, col. 5, lines 1-24).

23. It would have been obvious to one of ordinary skill in the art to use clamped coefficients as taught by Takatori et al. in the filter system of Langberg et al. in order to ensure that the adaptive filter coefficients are maintained within acceptable values.

24. Regarding claims 41 and 61, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, eq. 1 – col. 5, line 31).

25. Regarding claims 42 and 62, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

26. Regarding claims 43-45 and 63-65, Langberg et al. disclose a ramping circuit that provides a ramped output varied over time from a first value to a second value, as described above, but do not expressly state whether the output is ramped linearly or non-linearly. However, one of ordinary skill in the art would recognize that the output in the ramping circuit of Langberg et al. must be ramped either linearly or non-linearly (i.e. exponentially). Selection of the ramping to be either linear or to exponential is deemed a design consideration that fails to patentably distinguish over the prior art of Langberg et al.

27. Regarding claim 46, the ramping circuit 130 receives the coefficients over channel 119.

28. Regarding claims 48 and 66, Langberg et al. in combination with Morton et al. and Takatori et al. disclose a ramping circuit included in a receiver as described above, but do not expressly state that the receiver is a DSL receiver. However, DSL receivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

29. Regarding claims 49 and 67, Langberg et al. in combination with Morton et al. and Takatori et al. disclose a receiver included in a transceiver as described above, where in the combination, the ramping circuit transmits information representative of the ramped output to the precoder. Langberg et al. do not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dl
6/9/04

YOUNG T. TSE
PRIMARY EXAMINER